IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl.No.: 10/692,154 Confirmation No.: 9150
Appellant: Hung
Filed: 10/22/2003
TC/AU: 2624
Examiner: Wang

Docket: TI-35348
Cust.No.: 23494

APPEAL BRIEF

Commissioner for Patents
P.O.Box 1450
Alexandria VA 22313-1450

Sir:

The attached sheets contain the Rule 41.37 items of appellant's Appeal Brief pursuant to the Notice of Appeal filed 07/18/2007. The Director is hereby authorized to charge the fee for filing a brief in support of the appeal plus any other necessary fees to the deposit account of Texas Instruments Incorporated, account No. 20-0668.

Respectfully submitted,

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Rule 41.37(c)(1)(i) Real party of interest

Texas Instruments Incorporated owns the application.

Rule 41.37(c)(1)(ii) Related appeals and interferences

There are no related dispositive appeals or interferences.

Rule 41.37(c)(1)(iii) Status of claims

Pursuant to MPEP 1205.02, for each claim in the case appellant states the status as follows:

Claim 1: rejected

Claim 2: rejected

Claim 3: rejected

Claim 4: rejected

Claim 5: rejected

Claim 6: rejected

Pursuant to MPEP 1205.02, appellant identifies each claim on appeal as follows

Claim 1: on appeal

Claim 2: on appeal

Claim 3: on appeal

Claim 4: on appeal

Claim 5: on appeal

Claim 6: on appeal

Rule 41.37(c)(1)(iv) Status of amendments

There is no amendment after final rejection.

Rule 41.37(c)(1)(v) Summary of claimed subject matter

The independent claims on appeal consist of method claim 1 and apparatus claim 6.

The subject matter of Claim 1 is a method of tetrahedral interpolation, comprising the steps of:

(a) receive a color space input point (application page 6, lines 19-21; Figure 1, top);

(b) compute a base point and three differentials for said input point (application page 6, lines 22-26; Figure 1, first two boxes);

(c) compare said three differentials (application page 6, line 27; Figure 1, second box);

(d) compute tetrahedron vertices from the results of steps (b) and (c), a first one of said vertices being said base point (application page 6, lines 27-28; Figure 1, third box);

(e) find output values for each of said vertices (application page 6, line 29 to page 7, line 11; Figure 1, fourth box);

(f) compute an interpolated output value for said input point as the sum of the output value of said base point plus the inner product of said differentials in size order with corresponding differences of said output values for said vertices (application page 7, lines 11-17; Figure 1, fifth and sixth boxes).

The subject matter of Claim 6 is a tetrahedral interpolation system (application page 10, lines 9-10; Figure 2), comprising:

(a) an input for receiving an input point (application page 10, line 20; Figure 2, top R,G,B);

(b) first circuitry coupled to said input and arranged to output a base point plus three differentials for said input point, said differentials sorted in size order (application page 5, lines 5-10; page 10, line 11; Figure 2, top box);

(c) second circuitry coupled to an output of said first circuitry and to compute lookup table addresses of four vertices of an interpolation tetrahedral for said input point (application page 5, lines 5-10, page 10, lines 15-16, and page 10, line 25 to page 11, line 11; Figure 2, top box);

(d) four memory banks containing said lookup table and coupled to said second circuitry (application page 5, lines 5-10 and page 11, lines 12-14; Figure 2, table

bank0 - table bank3), wherein each of said memory banks contains entries for all addresses with a common residue modulo 4 (application page 11, lines 7-11 and lines 27-28); and

(e) third circuitry coupled to said four memory banks and said first circuitry, said third circuitry arranged to compute a tetrahedral interpolation value for said input point (application page 5, lines 5-10 and page 10, line 20; Figure 2, bottom box).

Rule 41.37(c)(1)(vi) Grounds of rejection to be reviewed on appeal

The grounds of rejection to be reviewed on appeal are:

1. Claims 1-6 were rejected under 35 USC § 102(b) as being anticipated by Schoolcraft et al. (USP 6,466,333).

Rule 41.37(c)(1)(vii) Arguments

1. Claims 1-6 were rejected as anticipated by Schoolcraft.

Claims 1-5: Base claim 1 requires an inner product of the differentials in size order with the corresponding differences of vertex outputs. And the Examiner cited Schoolcraft Table III for claim 1, step (f) inner product of the ordered differentials with the differences of vertices. However, Schoolcraft Table III does not suggest an inner product of the differentials in size order with the corresponding differences of vertex outputs. Rather, Table III just lists the six possible relative sizes of the three differentials and the corresponding interpolation in terms of an inner product of differences of differentials with vertex outputs; that is, Table III has differences of differentials, whereas the claim is differences of vertex outputs. Further, Schoolcraft FIG.8 computes the differentials in step S807, but then computes the entries in the temporary lookup Table V in step S808 without any differential size ordering, and computes the index in step S809, etc.

In response to the foregoing argument, the Examiner noted that the computation of Schoolcraft; namely,

$$V = [(dx)V0 + (dy\ \ dx)V3 + (dz\ \ dy)V1 + (16\ \ dz)V7]/16$$

could be rearranged to look like the claim 1 inner product; namely,

$$V = dx(V0\ \ V3)/16 + dy(V3\ \ V1)/16 + dz(V1\ \ V7)/16 + V7$$

However, this is no surprise: Schoolcraft and claim 1 both perform tetrahedral interpolation and thus have to get the same answer. But claim 1 is directed to the method of computing the interpolation; and the Examiner's rearrangement is just hindsight. This does not suggest base claim 1 or its dependencies.

Claim 6: The Examiner noted that claim 6 is a device claim corresponding to method claim 1 and is analyzed similarly. Applicant thus relies upon the foregoing argument with regard to claim 1 that Schoolcraft does not suggest the sorting of the differentials in size order as required in claim 6. Rather, Table III just list all possibilities.

Consequently, Schoolcraft does not suggest any of the claims.

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Rule 41.37(c)(1)(viii) Claims appendix

Claim 1 A method of tetrahedral interpolation, comprising the steps of:

(a) receive a color space input point;

(b) compute a base point and three differentials for said input point;

(c) compare said three differentials;

(d) compute tetrahedron vertices from the results of steps (b) and (c), a first one of said vertices being said base point;

(e) find output values for each of said vertices;

(f) compute an interpolated output value for said input point as the sum of the output value of said base point plus the inner product of said differentials in size order with corresponding differences of said output values for said vertices.

Claim 2 The method of claim 1, wherein:

(a) said output values of step (e) are a single color value for each vertex.

Claim 3 The method of claim 1, wherein:

(a) said output values of step (e) are three color values for each vertex.

Claim 4 The method of claim 1, wherein:

(a) said output values of step (e) are four color values for each vertex.

Claim 5 The method of claim 1, wherein:

(a) said output values of step (e) are six color values for each vertex.

Claim 6 A tetrahedral interpolation system, comprising:

(a) an input for receiving an input point;

(b) first circuitry coupled to said input and arranged to output a base point plus three differentials for said input point, said differentials sorted in size order;

(c) second circuitry coupled to an output of said first circuitry and to compute lookup table addresses of four vertices of an interpolation tetrahedral for said input point;

(d) four memory banks containing said lookup table and coupled to said second circuitry, wherein each of said memory banks contains entries for all addresses with a common residue modulo 4; and

(e) third circuitry coupled to said four memory banks and said first circuitry, said third circuitry arranged to compute a tetrahedral interpolation value for said input point.

Rule 41.37(c)(1)(ix) Evidence appendix

none

Rule 41.37(c)(1)(x) Related proceedings appendix

none